



U.S. EPA Engineering Forum Strategic Plan

July 8, 2008



Technical Support Project

<http://www.epa.gov/tio/tsp/engforum.htm>

U.S. EPA Engineering Forum Strategic Plan

Introduction

This Strategic Plan highlights the purpose, mission, goals, and objectives of the U.S. Environmental Protection Agency (EPA) Engineering Forum (EF). It sets forth the principles that guide the EF's decision-making, helps clarify the EF's priorities, and positions the EF to support EPA's strategic goals. It will be updated annually.

Engineering Forum Purpose

The EF has three primary purposes.

1. The first is to bring the current state-of-the-science to each Regional office as it is developed through the research efforts at the labs. This allows the Agency to improve the application of environmental science and technologies towards cleaning up contaminated land, and restoring this land for beneficial use.
2. The second is to focus laboratory resources on research areas important to engineers and technical support staff working to achieve cleanup goals at Superfund and RCRA sites throughout the country.
3. Finally, through collaboration, the Forum works to maintain consistency across all regions in the interpretation of guidance and application of Agency policy.

Engineering Forum Mission

As one of the EPA Technical Support Project's three technical forums, the EF provides technical support on engineering issues to the Regional offices and serves as a line of communication between the Regions, Headquarters, and the laboratories of EPA's Office of Research and Development (ORD). The Engineering Forum encourages information exchange among these entities regarding innovative site cleanup and characterization

technologies as well as site-specific engineering issues, including problems encountered, solutions, and lessons learned. The EF is a team of experienced Regional engineers and scientists who are knowledgeable and interested in environmental engineering technologies and technical issues, and who have experience implementing technologies within the EPA administrative and regulatory framework.

This combination of engineering background and practical field experience is a unique resource that is utilized by EPA Regions, Headquarters and laboratories:

- to review technical guidance documents,
- to gather information from Regional project managers on various technologies,
- to disseminate cutting-edge technical information in site assessment and remediation,
- to encourage more efficient and effective cleanup of contaminated sites across Regions and across programs, and
- to promote Regional consistency.

Through this work, the EF endeavors to assist site managers in every Region to achieve our shared national strategic goal of cleaning up and revitalizing contaminated land as a fundamental objective in EPA Strategic Plan Goal 3, Restoring Land.¹ EF members perform these functions on a volunteer basis within the ten EPA Regions, in addition to their primary functions and responsibilities.

Engineering Forum Past Accomplishments

In this section, we've included some accomplishments of the EF from 2006-2008.

¹ "2006-2011 U.S. EPA Strategic Plan," Goal 3, Sub-Objective 3.2.2, Cleanup and Revitalize Contaminated Land, <http://www.epa.gov/ocfo/plan/2006/goal_3.pdf>, and also Appendix 4 of this document.

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Members of the EF were not primary authors of most of the issue papers, but assisted with their preparation.

Issue Papers:

- In Situ Treatment Technologies for Contaminated Soil
- In Situ and Ex Situ Biodegradation Technologies for Remediation of Contaminated Sites
- In Situ Chemical Oxidation
- Management and Treatment of Water From Hard Rock Mines
- Selecting Treatment Process Design Data to Collect at Hazardous Waste Sites
- Guide To Online Remediation Technologies Databases and Resources

Training presented by the EF at the 2006 and 2007 conferences of the National Association of Remedial Project Managers (NARPM):

- Vapor Intrusion – Remedial Design
- Remedial Technologies Overview/Update (2)
- Online Technology Resources
- Engineering Design Considerations for Vapor Intrusion Mitigation
- Nanotechnology: Solutions, Challenges and Implications for Superfund

Document Reviews:

- A Cost Comparison Framework for Use in Optimizing Ground Water Pump and Treat Systems
- Options for Discharging Treated Water from Pump and Treat Systems
- Environmental Security Technology Certification Program's Frequently Asked Questions Document (FAQ) on Dense Non-Aqueous Phase Liquids (DNAPLs)

Engineering Forum Strategy

The EF's plan of action for the future is outlined in this document, which will be updated as needed. We will continually seek ways to enhance outreach to our peers and potential members, and to find better ways to bring site

managers the kind of information that they need to improve the job of cleaning up the nation's contaminated lands. We aim to continually improve our collaboration and outreach to address future environmental challenges. As a team composed entirely of volunteers, the EF's primary resource is our collective knowledge and experience in environmental engineering technologies. We will continue to focus our resources on innovative solutions to address challenges and encourage technical excellence in environmental cleanup projects across EPA.

Engineering Forum Goals

The EF's goals are outlined below under four workgroup goals, with objectives and actions following each of the four goals.

Workgroup Goal #1:

Maintain communication on technical and engineering issues between the EPA labs, EPA Headquarters and Regional site managers.

Objective A:

Maintain technical interchange between the EPA labs, EPA Headquarters, and the regional site managers. Also, develop and maintain a network to share technical information with the Resource Conservation and Recovery Act (RCRA) and Brownfields programs, who are also involved in site cleanup work.

Actions:

- Encourage membership in the EF from these groups;
- Hold monthly conference calls and two annual face-to-face EF meetings, one typically with NARPM.
- EF Members and Friends are encouraged to invite others from their regional or other offices to attend

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monthly conference calls when we have a guest speaker.

Objective B:

Facilitate resolution of technical problems encountered by site managers and other interested regional personnel.

Actions:

- Encourage submission of "Technical Topics" from regional site managers so that discussion and assistance can be provided by the EF.
- Gather lessons learned about a given remedial technology from a variety of sources (clu-in.org, frtr.gov, 5 Year Reviews, optimizations, removals, etc.), as well as from project managers. Synthesize them into a single concise document on the order of 10 pages and make that available to project managers and other interested parties.

Objective C:

Enhance technology transfer from our EF meetings (including from NARPM).

Actions:

- Disseminate EF information to site managers by making available teleconference minutes and meeting summaries on the Technical Support Project webpage located at www.epa.gov/tio/tsp and distribute the Highlights newsletter to alert site managers to recent Forum activities.
- Conduct training and/or panel sessions on current technical topics at the annual NARPM Conference.

Workgroup Goal #2:

Support EPA site managers and Headquarters by developing technical issue papers, reviewing technical guidance documents,

gathering information, and identifying technical support needs.

Objective A:

Develop technical issue papers identified by forum members as regional needs.

Actions:

As of April, 2008, the EF is assisting with the publication of the following papers:

- - *Technology Alternatives for the Remediation of Soil and Sediment Contaminated with PCBs*
- - *Evapotranspiration Covers*
- - *Indoor Air Vapor Intrusion Mitigation Approaches*
- - *Ex-Situ Treatment of Oxygenated Hydrocarbons & Perchlorate in Ground Water*

Objective B:

Review technical guidance documents

Action:

Review technical guidance documents when they are sent to the EF For review by HQ, EPA Labs, other TSP Forums, or other appropriate parties.

Objective C:

Support EPA site managers and HQ by gathering information or identifying technical support needs

Actions:

- Periodically update the EF Expertise Survey (see Appendix 3), preferably expanding it to include RCRA corrective action project managers.
- Notify HQ (e.g. through inclusion in the monthly call notes) of any technical support needs identified by the EF.

Workgroup Goal #3:

Work to maintain consistency in the interpretation of hazardous waste site cleanup guidance and application of related policy throughout the country

Objective A:

Interact with and exchange technical information with the Interstate Technology and Regulatory Council (ITRC) as well as state government agencies and other federal government agencies, including but not limited to the services (USAF, USACE, USN) and the DOE.

Actions:

These may include:

- hosting specific topics related to guidance and policy interpretation on site cleanup issues on monthly calls and/or at national meetings;
- providing case studies or "lessons learned" information related to a specific guidance document or policy;
- exchanging technical issue papers with other agencies;
- conducting peer review of guidance and policy coming out of other agencies;
- conducting the EF National Meeting in coordination with another agency (USGS) or agencies;
- when appropriate, attending meetings jointly with representatives of these other groups and inviting them to attend EF meetings; and
- continue to target state personnel for EF participation.

Objective B:

Promote regional consistency in the interpretation of guidance and application of policy.

Action:

Invite HQ to explain their desired interpretation of new technical guidance and policy documents and carry that understanding to the regions, thereby promoting regional consistency.

Workgroup Goal #4:

Assess and work to meet future technical support and training needs of site managers.

Objective A:

Analyze future technical support needs as EPA programs change and develop. These needs could include technology transfer to state environmental agencies, other federal agencies or increased technical support to site managers.

Actions:

Actions could include:

- conducting surveys among site cleanup managers in regional offices and labs to identify tech support and training needs on an annual or biannual basis, or as part of the EF National Meeting/NARPM meetings; and
- solicit input from Agency/Program management to identify "hot issues" with respect to tech support and/or training needs.

Objective B:

Meet the training needs identified based on input from site managers, and assist in training or technical presentations.

Actions:

- Conduct training sessions at NARPM and other venues. The following training will be available at NARPM 2008, with the Engineering Forum playing a part:

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- *Permeable Reactive Zones*
- *Green Remediation*

- develop and maintain a list of expertise and experience of Forum members to be used as "mentors" for site managers on specific topics, and/or as a resource for training or technical presentations;

- compile and make available technical presentations that come out of monthly calls and/or national meetings.

Appendices:

1. Most current table of current and planned EF projects -- EF "Evergreen List" as of June 2008.
2. EF Membership Qualifications and Responsibilities
3. Training Needs from EF Expertise Survey
4. Excerpt from EPA Strategic Plan, including GPRA Goal 3.2.2: Clean Up and Revitalize Contaminated Land
5. 2007 Call for Membership
6. EF Brochure

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Appendix 1. Evergreen List

Revision date: June 26 2008,M. Gill (R9)

ENGINEERING FORUM EVERGREEN LIST & WORKGROUPS

ISSUE PAPERS IN PROGRESS:

Title
Ex-Situ Treatment of Oxygenated Hydrocarbons & Perchlorates in Groundwater (28 pgs) (ORD Lead)
Technology Alternatives for the Remediation of Soil and Sediment Contaminated with PCBs (ORD Lead)
Evapotranspiration Covers (ORD Lead)
Indoor Air Vapor Intrusion Mitigation Approaches
In Situ Thermal Treatment (ORD Lead)

PRIORITIZED TOPICS FOR FUTURE CONSIDERATION:

HIGH PRIORITY

Topic
Develop Engineering Forum Strategic Plan, including a Mission Statement and Goals
Engineering Forum Brochure Update
Lessons learned from use of [insert technology here]. ISCO is first technology
Develop and Assist with the Presentation of Training at NARPM 2008 <ul style="list-style-type: none">- Permeable Reactive Zones [Panel Session]- Nanotechnology: Practical Considerations for Use in Groundwater Remediation [training course]

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Appendix 2: Membership Qualifications and Responsibilities (from EF Participation Agreement signed by all members of the EF)

A. MEMBERSHIP QUALIFICATIONS

Membership is subject to the approval of the co-chairs and is contingent upon the following criteria:

- 1) Each member must be a permanent employee of the U.S. Environmental Protection Agency. Each member must be either an engineer or technical professional having at least 3 years experience working in hazardous waste remediation. The forum allows for a maximum of three members one from RCRA, one from CERCLA and one alternate position from either RCRA or CERCLA.
- 2) Other persons interested in participating in the Engineering Forum, but who do not meet the membership criteria above may, at the discretion of the co-chairs, be granted the non-voting status of "Friend of the Forum."

B. MEMBERSHIP RESPONSIBILITIES

- 1) Each member is expected to participate in monthly conference calls and biannual TSP meetings. A member may be dropped if there is no participation in four consecutive conference calls or half of the monthly conference calls in any 12 month period. All membership issues will be referred to and resolved by the co-chairs.
- 2) Each member must join and actively participate in a forum workgroup or activity (Participation is defined as being involved in at least one Engineering Forum work product in a year. A work product is an item such as issue paper, reviewing and commenting on guidance documents, providing training or technical assistance, etc.). Members are to report on the progress of the work group or product during the conference calls. In addition, members will be asked to report on their participation and accomplishments biannually, to support the Forum's report to Headquarters.
- 3) Members are responsible for finding an alternate member or replacement who will carry out their responsibilities if they are unable to do so.
- 4) Members will be required to disseminate information on national and technical issues within the individual regions and regionally incorporated States, as applicable.
- 5) Members will develop stances on engineering-related technical issues.
- 6) Members will raise regional technical issues to the Forum during the monthly conference calls. Members will seek to identify inter-regional technical engineering problems. Solutions, suggestions, and/or recommendations will be developed within the Forum and/or directed to the EPA laboratories for further research. Where appropriate, the problem will be raised to OSWER to develop policy or guidance.
- 7) Members may act as intra- and inter-regional engineering resources.

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Appendix 3: Training Needs from EF RPM Expertise Survey

The EF published an expertise survey in December 2005, which tabulated results from surveys filled out by Superfund RPMs in the regional offices. One of the questions from that report was about training needs. Here are the results, which can still serve as a guide today (2008) for EF training needs.

The top training needs are:

- 1. Groundwater Modeling, 43 requests*
- 2. Indoor Air/Contaminated Groundwater Plume, 41 requests*
- 3. Bioremediation, 40 requests*
- 4. Technical Impracticability Waivers, 38 requests*
- 5. Sediment Issues, 34 requests*
- 6. Permeable Reactive Barriers, 34 requests*
- 7. DNAPLs, 31 requests*
- 8. Geophysical Characterization, 28 requests*
- 9. Explosives Sites, 27 requests*
- 10. Air Monitoring, 27 requests*
- 11. Chemical Treatment, 27 requests*
- 12. Pesticides, 25 requests*
- 13. Stormwater Runoff, 25 requests*
- 14. Slurry Walls, 25 requests*

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Appendix 4: Excerpt from EPA Strategic Plan (GPRA Goal 3.2.2: Clean Up and Revitalize Contaminated Land)

(http://www.epa.gov/ocfo/plan/2006/goal_3.pdf)

Sub-objective 3.2.2: Clean Up and Revitalize Contaminated Land.

By 2011 control the risks to human health and the environment at contaminated properties or sites through cleanup, stabilization, or other action and make land available for reuse.

- By 2011, control all identified unacceptable human exposures from site contamination for current land and/or groundwater use conditions at approximately 85 percent (1,316) of 1,543 Superfund human exposure sites. (The universe of 1,543 is the number of National Priorities List [NPL] sites with potential human exposure pathways as of FY 2005 and includes 172 Superfund federal facility sites. Baseline: By the end FY 2006, approximately 82 percent [1,266] of sites had human exposures under control.) By 2011, increase to 95 percent the high National Corrective Action Prioritization System (NCAPS)-ranked RCRA facilities with human exposures to toxins controlled. (The universe of all facilities that need RCRA Corrective Action will be finalized by the end of 2007 and will include high, medium, and low ranked facilities.)
- By 2011, control the migration of contaminated groundwater through engineered remedies, natural processes, or other appropriate actions at 74 percent (1,017) of 1,381 Superfund groundwater sites. (The universe of 1,381 sites is the number of NPL sites with groundwater contamination as of FY 2005 and includes 166 Superfund federal facility sites. Baseline: By the end of FY 2005, 68 percent [937] of sites had groundwater migration under control.) By 2011, increase to 80 percent the high NCAPS-ranked RCRA facilities with migration of contaminated groundwater under control. (The universe of all facilities that need RCRA Corrective Action will be finalized by the end of 2007 and will include high, medium, and low ranked facilities.)
- By 2011, complete construction of remedies at approximately 76 percent (1,171) of 1,547 Superfund sites. (The universe of 1,547 sites is the total number of sites on the NPL as of FY 2005 and includes 172 Superfund federal facility sites. Baseline: By the end of FY 2005, 62 percent or 966 sites had completed construction.) (Note that construction completion is a milestone that indicates that all significant construction activity has been completed, even though additional remediation may be needed for all cleanup goals to be met.)
- By 2011, ensure that 36 percent (345) of 966 final and deleted construction complete NPL sites are ready for reuse site-wide. (As of July 2006, 20 percent [195] of the 966 final and deleted construction complete NPL sites, including 14 Superfund federal facility sites, met EPA's definition for ready for reuse site-wide.)

EPA's planning and budgeting architecture for Superfund and Resource Conservation and Recovery Act (RCRA) appropriations is encompassed in Goal 3 of the 2006-2011 Strategic Plan. Looking ahead to 2020, EPA's long-term goal for cleanups at RCRA facilities is to complete construction of final remedies at 95 percent of all low, medium, and high priority facilities. This includes 3,746 facilities nationwide. Additional goals of EPA's 2020 Vision are to capitalize on redevelopment potential to accelerate cleanups, develop ways to accelerate the cleanup progress, and to develop and provide training as necessary to achieve these ambitious goals. EPA will be developing interim

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annual targets to measure progress. By 2011, EPA's goal is to complete construction of final remedies at 32 percent of RCRA facilities and to complete an additional 975 Superfund-lead hazardous substance removal actions and an additional 650 voluntary removal actions. Also by 2011, EPA aims to control all identified unacceptable human exposures from site contamination at 85 percent Superfund human exposure sites and 96 percent of high priority RCRA facilities, and control the migration of contaminated ground water at 74 percent of Superfund groundwater sites and 82 percent of high priority RCRA facilities.

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Appendix 5. Engineering Forum Call for Membership (2007)

This call for members was sent to regional staff in March 2007 and could be reused for future membership drives.

Engineering Forum

We're Looking For a Few Good Engineering Professionals.....

A national workgroup, known as the Engineering Forum, is soliciting for new members from the regional Superfund and RCRA staff.

The Engineering Forum is one of the three Forums established under the Office of Solid Waste and Emergency Response (OSWER) and the Office of Research and Development (ORD) as the Technical Support Project (TSP) back in 1987. The other Forums are the *Ground Water Forum* and the *Federal Facilities Forum*. EPA headquarters, ORD, the US Army Corps of Engineers, and state personnel also participate on the Forums. Forum members work to improve communications and assist in technical transfer between EPA regional and laboratory staff on nationally significant topics. Members participate in monthly conference calls and meet semi-annually to discuss technical and policy issues, new technologies, and to network with academic experts and other federal agencies. In addition to providing technical assistance to regional staff, products generated typically include "Issue Papers" or other reference materials. For more information, go to <http://www.epa.gov/tio/tsp>.

The Engineering Forum consists of engineers and other technical staff that support the Superfund and RCRA programs in each of the ten EPA regional offices. The group was organized to exchange up-to-date information related specifically to engineering remediation issues at Superfund and RCRA sites. The goal is to have at least two members per region on the Forum - one Superfund and one RCRA. **This solicitation is to fill some empty slots.** The time commitment is between 2-5% and regional travel expenses are minimized since the Office of Superfund Remediation and Technology Innovation (OSRTI) picks up member lodging costs for the semi-annual meetings. Some of our current topics have included:

- updating 8 issue papers covering numerous treatment topics;
- tech talks (perchlorate, ZVI-clay technology, solar-powered remediation); and
- agenda preparation for upcoming meetings (including a nanotech session)

The last TSP meeting was held in conjunction with the Groundwater Resources Association of California in Long Beach in November 2006. The meeting covered "High Resolution Site Characterization and Monitoring". The TSP project meets jointly with the National Association

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of Remedial Project Managers (NARPM), including this May (2007). Minutes from previous meetings can be found on the TSP website: (<http://www.epa.gov/tio/tsp/meetings.htm>).

If you are a Superfund or RCRA engineer or scientist and are interested in being involved in technical issues that are of national importance, please consider joining the Engineering Forum. Please contact any of the current co-chairs, Jon Bornholm of Region 4 (404-562-8820), Mike Gill of Region 9 (415-972-3054), or Steve Kinser of Region 7 (913-551-7728), or your regional rep (see below) with any questions. Engineering Forum Regional Representatives (as of March 2007

(The original list from the document was removed, as it was out of date. Please see the following website for the most up-to-date EF membership information:
<http://www.epa.gov/tio/tsp/engmembe.htm>)

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Appendix 6. Engineering Forum Brochure

(See following pages for the July 2008 version of the two-sided tri-fold brochure the EF has distributed at recent NARPM conferences)